Surgical Gloves (9/03)

A laboratory-based study to assess the performance of surgical gloves. Korniewicz DM, El-Masri MM, Broyles JM, Martin CD, O'Connell KP. AORN J 2003;77:772-779.

The increased incidence of latex allergy has led to increased use of nonlatex surgical gloves, however the effectiveness of these gloves as a barrier to infection has not been examined thoroughly. This laboratory-based study compared the performance of latex and nonlatex surgical gloves in a simulated-stress protocol. **The propensity of surgical gloves to fail was dependent on glove material, manufacturer, and stress. Nonlatex neoprene and nitrile gloves were comparable to latex and can provide a good alternative to latex for allergic patients and health-care workers. In this study, isoprene was found to be inferior to latex and other nonlatex materials. The presence or absence of glove powder had no significant influence on the probability of glove failure.**

DIS Comment: Latex has been the traditional material of choice for surgical gloves, protecting both health-care personnel (HCP) and patients from the transmission of bloodborne infections. However, increased use of latex gloves has been accompanied by more reports of allergic reactions to natural-rubber latex between HCP and patients. The Food and Drug Administration (FDA) regulates the medical-glove industry, which includes gloves marketed as sterile surgical or non-sterile examination. More rigorous standards are applied to surgical than to examination gloves. The FDA has identified failure rates for glove manufacturers, but gloves eventually fail with exposure to mechanical (e.g., sharps, fingernails, jewelry) and chemical (e.g., dimethyacrylates) hazards and over time. These variables can be controlled, ultimately optimizing glove performance, by: 1) maintaining short fingernails; 2) minimizing or eliminating hand jewelry; and 3) properly using engineering and work practice controls to avoid injuries with sharps. The authors recognized that this study had several limitations. The study was a laboratory simulation; therefore it was limited by the number of gloves tested and the 30-minute stress protocol. Also, the study was limited to gloves from six manufacturers and did not include gloves from all available manufacturers. Glove material, manufacturer, and the use of a stress protocol or actual use in surgery are all factors that must be considered when evaluating the effectiveness of glove barrier quality.